

MEETING IN NOR AMBERD

*ABSTRACTS OF PRESENTATIONS
MEMORIES & DISCUSSIONS
LECTURES*



THE SEARCH OF SOMATIC EMBRYOGENESIS REGULATORS IN *MEDICAGO TRUNCATULA*

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Somatic embryogenesis (SE) is a way of plant regeneration consisting in the development of embryo-like structures from somatic cells. Like usual zygotic embryos, somatic embryos are able to develop into new plant. SE is used in biotechnology for genetic modification of plants, and the search of SE regulators may be useful for the development of new methods of plant transformation.

A number of transcription factors were found, whose ectopic expression can induce SE, including WUSCHEL homeodomain-containing protein from the *WOX* family, as well as *BABY BOOM*, *LEAFY COTYLEDON1* proteins etc. We found recently, that overexpression of *MtWOX9-1* gene from the *WOX* family can also stimulate SE in *Medicago truncatula*. Now we are trying to find the regulatory factors, functioning together with *MtWOX9-1* during SE. We used CRISPR/Cas9 technology to obtain plants with *MtWOX9-1* loss of function and to evaluate their SE capacity. Using phylogeny and expression analysis, we found other *WOX* genes which can possibly act redundantly with *MtWOX9-1* during SE. *WOX* genes are known to be regulated by small peptides from *CLE* family. We searched for *CLE* peptide which could suppress or activate *MtWOX9-1* expression and, therefore, to suppress or stimulate SE itself. We found one possible suppressor of SE among *CLE* genes. We also use EMSA and ChIP analysis to find *MtWOX9-1* targets.

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